

# The Influence of Thinking Styles and Learning Styles on Student Learning Achievement

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## ABSTRACT

Thinking styles and learning styles are a person's unique identity in the learning process in order to achieve learning outcomes, one of which is learning achievement. This study aims to see the effect of thinking and learning styles on learning achievement in Islamic education at a private Islamic university in North Sumatra. The method used is quantitative. There are 2739 students as a population and 438 students as a sample. The instrument uses a Likert scale. The thinking style scale was adapted from Sternberg, namely thinking style and student learning style variables will be measured using the Grasha Learning Style Inventory. The results showed that there was an influence of thinking styles and learning styles on learning achievement in Islamic Education at a private Islamic university in North Sumatra. There is a contribution between the dominant thinking style on student achievement ( $F = 29,393$ ,  $p = .000$ ) with an effect of 32.4%. There is a significant contribution from the dominant learning style to student achievement in Islamic education ( $F = 36,500$ ,  $p = .000$ ), with a contribution of 20.2%.

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## 1. INTRODUCTION

Learning style is a combination of how a person absorbs, then organizes and processes information. Learning styles are based on visual, auditory or kinesthetic modalities. Even though everyone has all three learning styles, there is usually one that is more dominant among the three learning styles (Jannah, 2004). Ghofur et al. (2016) said that learning style is also a driving factor for achieving thinking skills. The same thing was also said by Pratiwi et al. (2022). People's learning styles are influenced by natural factors and environmental factors (Mufidah, 2017). Learning style is an approach that explains how individuals learn or the way each person takes to concentrate on the process and masters complex and new information (Nurasia, 2015). This learning style has something to do with the style of thinking. Jannah (Jannah, 2004) say that thinking style is the dominant of the brain in processing information. The discussion above brings us to an understanding that this learning

style and thinking style has continuity with the results of a learning process, one of which is learning achievement. Learning styles affect intelligence abilities which makes each person's learning achievement different. The same thing was also conveyed by Izzaty (2017) which says that student achievement is influenced by various factors, including intelligence.

Learning achievement is the learning result achieved by a person after he changes in learning, both at and outside of school (Mawarni & Fitriani, 2019). Learning achievement from a learning outcome is usually done through active learning. Djamarah, in Syafi'i (2018), says that active learning is carried out to improve student learning achievement. Furthermore, learning achievement can be interpreted as the result of learning effort activities expressed in the form of numbers, letters, or sentences that can reflect the results that have been achieved by each student. Each learning success is measured by how far the learning outcomes are obtained by students. Student success in achieving teaching goals is manifested by grades. In addition, the learning outcomes obtained by students are as a result of the learning process carried out by students, the higher the learning outcomes obtained by students. The learning process supports the learning outcomes achieved by students (Santosa et al., 2020). The higher the student's score, it can be said that the student has good learning achievement. Conversely, the lower score obtained by students indicates lower student achievement (Santosa et al., 2020). Lawrence and Vimala inside (2019) said that learning achievement is defined as a measure of knowledge obtained from formal education and shown through test scores.

Learning achievement is an achievement or skill that is shown in expertise or a collection of knowledge. The knowledge, experience and skills acquired will shape student personalities, broaden student personalities, broaden life insights and improve student abilities (Harefa & Sumiyati, 2020). Learning achievement is a benchmark in measuring learning and learning, which is consistently used to determine student understanding of the material obtained (Asdiniah & Lestari, 2021). Meanwhile, Pratini (D. Wulandari et al., 2020) argues that learning achievement is a result achieved by someone in carrying out learning activities. The principle of active learning is in line with the principle of constructivism, namely accelerated learning through interaction (Woolfolk, 2001). An interactive and conducive teaching and learning environment will be created if lecturers are aware of the diversity of students in the lecture hall. Learning achievement is an important thing in human life. Humans always try to pursue achievements according to their respective fields and abilities. The teacher's task is to guide students so that they are able to develop personality potential and adapt themselves to the various needs and changes that occur in their environment (Indriyani et al., 2020). According to Akhwani and Nurizka (2021), learning achievement is the ultimate goal of organizing learning in schools and is also the most important goal. Each student's achievement can be presented in the form of academic ability test results. From this point of view, it can be concluded that learning achievement is a series of activities carried out by a person based on the results that have been achieved, and these results can be in the form of grades (Praseptia & Zulherman, 2021). More simply, learning achievement can be interpreted as the result of learning effort achieved by a student in the form of skill from academic learning activities at school for a certain period which is recorded at the end of each semester in a report called report card (Achdiyati & Warhamni, 2018).

Sidin (2000) argues that improving the quality of teaching and learning between lecturers and students is increasingly important to learn. The quality of teaching and learning is an important factor in improving the quality of graduates. An interactive and conducive teaching and learning environment can be created if lecturers are aware of the diversity of students in the class (Wood, 1999). Tyson (1998) suggests that one aspect of student diversity is getting the attention of educators and researchers. Style is an abstract and complex construction because it is a bridge that connects two aspects, namely, the expression of personality in action and the expression of the ability to do something (Snow et al., 1996). Style can also be defined as a strategy that is used consistently in completing tasks.

One of the factors that influence student learning achievement is thinking style or also known as cognitive style. Thinking style is a style related to personal characteristics, not to the ability to perform a task (Sternberg & Grigorenko, 1997). Cognitive style is related to the ability to process, store and use

the information to respond to various types of environmental situations (Muhassanah & Mulyatna, 2020). Sternberg's theory is useful for viewing humans as people who are free to choose and manage their lives. This control is exercised by the human mind, which is analogous to a form of government which describes how individuals govern themselves.

Cognitive style is an individual characteristic of a person's way or tendency in terms of understanding, remembering, organizing and processing information, thinking and solving problems (Shamsuddin, 2020). The position of cognitive style in the learning process is important for the attention of the learning designer because the learning design, which is prepared with cognitive style in mind, means presenting learning material that is in accordance with the characteristics and potential of students so that it is expected to create a good learning atmosphere (Rachmat. et al., 2020). Teachers must be aware of the different characteristics of students. Even the ability of students to understand and absorb subject matter varies according to their respective cognitive styles (Rachmat. et al., 2020).

Albrecht (1983) explains that thinking style is a means by which a person processes information, acquires knowledge, creates ideas, applies values, solves problems and expresses himself. Albrecht proposed a style of thinking based on mental processes from four dimensions of cognitive tendencies, namely the concrete left brain, the abstract left brain, the concrete right brain, and the abstract right brain. Sternberg (Sternberg & Grigorenko, 1997) argues that this style of thinking sees humans as creatures who are free to choose and manage their lives. This control is carried out by the human mind, which can be analogous to the rules governing individual life in an organization.

The effectiveness of the teaching and learning process carried out by students needs to be supported by their individual thinking styles. This is in line with Sternberg's view that learning styles are influenced by a combination of dominant thinking styles. Sternberg found that the quality of learning in the classroom depends on the suitability of the thinking styles of lecturers and students.

Then another factor that influences student learning achievement is learning style. Learning style refers to the thought process and learning preparation used by students to make learning more effective (Mills, 1993). One's mindset refers to the activity of organizing, accepting and understanding, remembering and clarifying. All of these activities are useful for producing an effective and successful learning process in the classroom. Guild (1994) considers that learning style is a cognitive style that includes understanding concepts, characters and behaviors produced consistently and when individuals complete their tasks. Then, Saija (2020) also has the opinion that learning styles refer to cognitive, affective and psychological behaviors that vary among students to understand, manage and maintain their experiences in learning and to solve problems.

A person's learning style is based on differences in individual views about something. Learning styles are the ways students use to understand something in the learning process. The more learning styles mastered by students, the better the learning process that occurs (D. S. Wulandari & Rusmana, 2020). Main (1980) says that learning style is a pattern or habit of learning that someone usually does. Another opinion says that learning style is a consistent way that is done by a student in capturing stimulus or information how to remember, think, and solve problems. Not everyone follows the same path (Kadir et al., 2020).

Kolb (1999) also argues that learning style is a person's way of processing information when students get to know a new concept or principle. Student learning styles are things that are very related, mutually support one another, and greatly determine the success of a learning process (Kadir et al., 2020). If a student's learning style is in line with their abilities, their learning outcomes will also be good, and this cannot be separated from the teacher as the key to being creative and innovative in choosing learning methods (Aldiyah, 2021).

Schmeck (1983) describes learning styles as strategies that a person consistently uses during information processing. Learning style is the easiest way that is owned by individuals to absorb, organizing and processing the information received. However, sometimes students do not know and understand their own learning style, most still think that learning is a demand, not a need. As a result, they do not care about how to learn in a fun way for themselves, even though understanding student learning styles will be more optimal for learning (Hermawati & Andayani, 2020).

According to Schmeck (Schmeck, 1983), learning style can describe a person's self-discipline before the individual shows certain patterns when processing information during exams and completing assignments. Therefore, Schmeck considers learning styles more appropriate to determine an effective learning process. According to More (1993), learning style is a thought process and preparation for learning that students use to be more effective when studying. The individual mindset refers to the activities of organizing, receiving, understanding, recording, and remembering. All of these activities will result in an effective and successful learning process in the classroom.

The literature review also found that at the university level, there are studies related to student learning styles, and their constructs are related to student attitudes and learning outcomes. Grun (1986) found that there is a close relationship between learning styles and students' attitudes in terms of observation, class discussions, self-study and lectures. He also found that students who were more theoretical and analytical performed well on exams. Appropriate learning style is the key to one's success in learning. Therefore, in learning activities, students really need to be assisted and directed to identify learning styles that suit them so that learning objectives can be achieved effectively (Kadir et al., 2020).

Islamic education as a subject at the university level needs to apply thinking styles and learning styles among students. This is deemed necessary because Islamic Education has its own function, namely as fostering and increasing faith and piety, channelling talents and interests in deepening religion, correcting errors in beliefs, understanding and practising religious teachings, and preventing bad things from the environment or foreign culture. Dangerous, a source of values or life guidelines to achieve happiness in the afterlife, and teaching or spreading religious knowledge (Muhaimin, 1996).

In fact, the understanding and practice of Islamic education at the public tertiary level in Indonesia is far from expectations. Most students are still focused on their respective fields of knowledge. Therefore, a study of thinking styles and learning styles and their impact on student achievement can also contribute to efforts to improve the quality of teaching and learning in Islamic Education.

Many studies have been conducted on learning styles and their impact on student achievement and achievement. However, thinking styles and learning styles related to student achievement in Islamic Education have not been carried out. Although the awareness to improve the quality of graduates has been discussed since the beginning. Research on thinking styles and learning styles will help improve the quality of graduates.

This study can also lead to changes in vision while also influencing the effectiveness of lectures' teaching and learning process. Information from research on thinking styles and learning styles is important for students in tertiary institutions, the Directorate General of Higher Education, and the National Education Sector to plan programs on the quality of teaching and learning in educational institutions. The problem examined in this study is the influence of students' thinking styles and learning styles on academic achievement at a private Islamic university in North Sumatra.

## 2. METHODS

This research method uses a quantitative correlational approach. The research was conducted at the Islamic University of North Sumatra. There were 2739 students as the population and 438 students as the sample. Samples were taken 25% of the total population. In this study, thinking style was determined by using the Thinking Style inventory. This instrument is translated and adapted from Sternberg Thinking Style. Where there are seven styles of thinking, namely legislative, executive, judicial, monarchy, hierarchical, oligarchic, anarchy, global, local, external, internal, liberal and conservative. This questionnaire has 65 items built using a Likert scale with 7 categories, namely 7 "very, very suitable for me", 6 "very suitable for me", 5 "according to me", 4 "somewhat suitable for me",

Meanwhile, the Grasha Learning Style Inventory will measure student learning style variables. Where there are 6 learning styles, according to Grasha, namely free, avoidance, collaborative, dependent, competitive, and participating. This questionnaire has 60 items built using a 7 Likert scale score. These items measure student behaviour that reflects the six types of learning they choose. This scale uses a Likert with 7 categories, namely 7 "very, very suitable for me", 6 "very suitable for me", 5

"according to me", 4 "somewhat suitable for me", 3 "not suitable for me", 2 "totally disagree with me", 1 "totally disagree with me".

Data analysis in this study used the SPSS (Statistical Package for the Social Sciences) application program using multiple regression. Multiple linear regression analysis was used to determine the effect of motivational variables on employee performance variables. SPSS version 15 for Windows was used to test and process the data. The tests carried out in this study used a significant level of 5% ( $\alpha = 0.05$ ).

### 3. FINDINGS AND DISCUSSION

The results of this study indicate that there is an influence between thinking styles on learning achievement in Islamic education. This conclusion was obtained based on the value of  $r$  in multiple regression analysis.

**Table 1. Correlation between students' thinking styles with learning achievement**

Connection	R	Sig. P
Executive * Achievements	0.352**	0.000
Judicial * Achievements	0.416**	0.000
Monarchy * Achievements	0.326**	0.000
Hiraki * Achievements	0.345**	0.000
Global * Achievements	0.326**	0.000
Internal * Achievements	0.392**	0.000
Conservative * Achievements	0.388**	0.000

The table above shows that the executive thinking style ( $R = .352$ ;  $p < .01$ ), judicial thinking style ( $R = .416$ ;  $p < .01$ ), monarchical thinking style ( $R = .326$ ;  $p < .01$ ), hierarchical thinking style ( $R = .345$ ;  $p < .01$ ), internal thinking style ( $R = .383$ ;  $p < .01$ ) and conservative thinking style ( $R = .388$ ;  $p < .01$ ) have a significant relationship to level  $p < .01$  with the achievement of Islamic Education in students at Islamic Universities, and has a moderate relationship strength.

**Table 2. Multiple regression analysis of thinking styles on learning achievement**

Model	Pekali unbarred	std. Error	Best Pekali (Beta)	t	Sig.
Executive	1,789	.800	.108	2,237	.026
Judicial	4,425	.794	.249	5,540	.000
monarchy	2,557	.669	.165	3,832	.000

Based on the Multiple Regression Test, it shows the value of  $F = 29,393$ ,  $p = .000$ . This shows that there is a contribution of thinking style to student achievement. The adjusted  $R^2$  value is .324 (32.4%) for the learning achievement variance. The table above shows judicial thinking style (Beta = .249,  $t = 5.540$ ,  $p = .000$ ), Monarchic thinking style (Beta = .165,  $t = 3.832$ ,  $p = .000$ ) and Executive thinking style (Beta = .108,  $t = 2.237$ ,  $p = .000$ ) contributed significantly to learning achievement. Then the results of the next study showed that there was an influence between learning styles on learning achievement in Islamic Education. This conclusion was obtained based on the value of  $r$  in multiple regression analysis.

**Table 3. Correlation between student learning styles with learning achievement**

Connection	R	Sig. P
Collaborative * Achievements	0.321**	0.000
Competitive * Achievements	0.333**	0.000
Participate * Achievements	0.338**	0.000

Table 3 shows that the collaborative learning style ( $R = .321$ ;  $p < .01$ ), competitive learning style ( $R = .333$ ;  $p < .01$ ) and participative learning style ( $R = .338$ ;  $p < .01$ ) have a correlation which is significant at the level of  $p < 0.01$  with learning achievement in Islamic Higher Education students, and has a moderate relationship strength. In other words, if the judiciary style increases by one point, the achievement of Islamic education will increase by 0.249 units. Similarly, if the monarchical style increases by one unit, the achievement of Islamic education will increase by 0.165 units. In addition, if the executive style increases by one unit, the achievement of Islamic education will increase by 0.108 units.

**Table 4. Multiple regression analysis of learning styles on learning achievement**

Model	Pekali unbarred	std. Error	Best Pekali (Beta)	t	Sig.
Collaborative	2,982	1.007	.152	2,961	.003
competitive	3,719	.958	.197	3,880	.000
participatory	6,643	1.148	.258	5,786	.000

Based on the Multiple Regression Test, the value of  $F = 36,500$ ,  $p = .000$  was obtained. This shows that there is a significant contribution of learning styles to student achievement. The adjusted  $R^2$  value is 0.202 (20.2%) for the variance of student achievement. Table 4 shows participating learning styles (Beta = .258,  $t = 5.786$ ,  $p = .000$ ), competitive learning styles (Beta = .197,  $t = 3.880$ ,  $p = .000$ ) and collaborative learning styles (Beta = .152,  $t = 2.961$ ,  $p = .003$ ) all of which made a significant contribution to learning achievement. Therefore, if the participation style increases by one unit, learning achievement will increase by 0.258 units. In addition, if the competitive style increases by one unit, learning achievement will increase by 0.197 units.

Conservative thinking style is the biggest contributor to variance in student achievement. This can be seen from the ability of a student to always have a tendency to follow the usual procedures and try to avoid something that is not clear. Therefore lecturers must provide instructions to students, so that their tendency to follow the usual procedures in the learning process to get better grades in achievement. Judicial style can be seen from the ability of students to evaluate the learning process, which can affect achievement. Therefore, lecturers must guide students in evaluating teaching and learning situations in class.

Monarchy style is the ability of students to always focus on following the learning process using existing resources and energy. Therefore, lecturers must provide instructions to students, so that their ability to focus on the learning process can be a better value in achievement. Internal style can be seen from their ability to learn, always task-oriented and doing their own tasks. This internal thinking style is related to Competitive Learning Style, which is also dominant among students. In the Competitive Style, students have a tendency to beat other students for good grades. Therefore, lecturers must guide students to improve their ability to get good grades in achievement.

The four characteristics of thinking styles will have an impact on achievement. Therefore, it is expected to think that students contribute 35.1 to the learning achievement variance. This is in line with Grigorenko & Sternberg (Sternberg & Grigorenko, 1997), who argue that thinking style contributes to academic achievement by about 10%, even if the percentage contribution of the variance may be larger if the criteria are applied. Meanwhile, research findings by Cano-Garcia & Hughes (2000) show that thinking styles can be predicted to contribute a 6.75% variance to academic achievement.

Learning style is also the highest contributor to learning achievement. This can be seen from the style of students who like to study well and actively meet lecture needs. This shows that Islamic Higher Education students also have executive dominance, which is the tendency of students to follow instructions, and structure and do what they are told. Therefore, lecturers must also provide instructions to students so that the dominant executive thinking and learning style among them can improve their achievement.

Furthermore, competitive learning styles also contribute to the variance of Islamic education achievement. This can be seen from the style of students who beat other students to get high scores. This is stated because Islamic Higher Education students are used to doing personal assignments that require students to overcome good grades from other students. Therefore lecturers must also give instructions to students in a competitive style, so that competition among students will be able to increase their achievement.

Furthermore, this study shows that collaborative style is a contributor to achievement. This can be seen in the ability of students to learn with other people, which can influence their achievement. Thus, lecturers must guide students in a collaboration style so that students can further improve their achievements through collaboration among themselves by sharing ideas and abilities. This is stated as students of Islamic Higher Education who are used to doing group assignments and want to work together and share ideas.

Although findings indicate that certain learning styles contribute to achievement, according to Devis (1993), there is no evidence of what style is most appropriate for all students to achieve academic excellence. Furthermore, Zalizan (1998) and Renzulli et al. (2002) argue that teaching and learning styles can produce optimal learning effects.

#### 4. CONCLUSION

The conclusions from the results of the research on the influence of thinking styles and learning styles on achievement show that there is a significant influence. The results of multiple regression analysis showed that there was a contribution of 32.4% of students' dominant thinking styles and 20.2% of dominant learning styles' contribution to student achievement. Furthermore, this research is limited to the influence of thinking and learning styles on learning achievement. It is better for future research to continue with other research variables, not only limited to the effect of thinking styles and learning styles on learning achievement, but can be discussed in a broader manner, such as the influence of thinking styles and learning styles on learning outcomes, learning motivation, and so forth

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